

Agency Response to Economic Impact Analysis (EIA) Performed by the Virginia Department of Planning and Budget:

We do not concur with the concerns raised in the Economic Impact Analysis (EIA).

History with NCEES

Note: The National Council of Examiners for Engineering and Surveying (NCEES) is a group comprised of all the regulatory boards in the United States which regulate the engineering and land surveying professions. NCEES develops the examinations which are used nationwide for the licensing of professional engineers and land surveyors and also provides other services including the development of model laws and regulations.

Starting in the 1990's, NCEES amended its model law for land surveying to include photogrammetry. In the later 1990's NCEES formed a working group of professional associations/societies to study the issue of a revised definition of "the practice of land surveying." This group was headed by Jim Plasker of the American Society for Photogrammetry and Remote Sensing (ASPRS) and developed a new definition of "the practice of land surveying" which included photogrammetry. At its annual meeting in August 2001, NCEES established an NCEES committee to review this information and prepare its own report. The NCEES report recommended that photogrammetry is the practice of land surveying. This information was presented to the NCEES membership at the annual meeting in August 2002 and the results of the report of the committee were distributed to other committees to make the necessary changes to various NCEES documents. At its 82nd Annual Meeting held on August 13 -16, 2003, in Baltimore, Maryland, the membership of the NCEES adopted changes to its model law regarding the practice of land surveying which included a revised definition of the practice of land surveying which included photogrammetry as well as provisions for a grandfather clause for practicing photogrammetrists who meet certain requirements (one of which is a combination of 8 years of education and experience).

Definition in the Code of Virginia

Section 54.1-400 of the Code of Virginia states:

"The 'practice of land surveying' includes surveying of areas for a determination or correction, a description, the establishment or reestablishment of internal and external land boundaries, or the determination of topography, contours or location of physical improvements, and also includes the planning of land and subdivisions thereof [emphasis added]. The term 'planning of land and subdivisions thereof' shall include, but not be limited to, the preparation of incidental plans and profiles for roads, streets and sidewalks, grading, drainage on the surface, culverts and erosion control measures, with reference to existing state or local standards."

Photogrammetry is a highly specialized tool that can be used to determine topography, contours or the location of physical improvements and is a tool that can assist with the

planning of land and subdivisions thereof. Photogrammetrists are highly specialized in their field and land surveyors, while knowledgeable in the determination of topography, contours and the location of physical improvements using traditional survey methods and not necessarily skilled in the use of photogrammetric tools, have a broader set of skills including boundary determination, grading, drainage and erosion control measures.

The definition of the “practice of land surveying” as contained in § 54.1-400 of the *Code of Virginia* includes the “... surveying of areas for ... the determination of topography, contours or location of physical improvements, and also includes the planning of land and subdivisions thereof ...” regardless of the tool that is used to accomplish such determination. Therefore, under the current definition in the *Code*, the determination of topography, contours or the location of physical improvements is the practice of land surveying, regardless of the means utilized to achieve such determination, is the practice of land surveying.

History with the APELSCIDLA Board

The APELSCIDLA Board has been working on this issue since 2000. After the Board adopted final regulations in 2001 for the regulation of photogrammetry, the Office of the Attorney General advised the Board “... the General Assembly has not provided the APELSCIDLA Board the requisite authority to sublicense other recognized professions in this area of practice, or to allow various types of licensure for occupations collateral to land surveying.”

2002 Legislation

During the 2002 General Assembly session, Delegate Preston Bryant introduced House Bill 1129 which would have codified the grandfather and licensure provisions for “Land Surveyor Photogrammetrists” that the APELSCIDLA Board attempted to adopt via regulations but were later told that they did not have proper statutory authority (see summary of action taken by the APELSCIDLA Board in 2001). After meeting resistance from VGIN and the GIS staff of some localities, the bill was left in committee and, as a result, failed to pass and did not become law.

BPOR Study

After studying the issue of photogrammetry relative to the practice of land surveying for several years, and after the introduction and non-passage of House Bill 1129 in the 2002 legislative session, the Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA Board) voted, at its meeting on December 11, 2002, to request that the Board for Professional and Occupational Regulation consider conducting a study of the profession of photogrammetry pursuant to § 54.1-310.A.6 of the *Code of Virginia*.

At its meeting on March 3, 2003, the Board for Professional and Occupational Regulation (BPOR) agreed to conduct the study.

The November 17, 2003, BPOR report concluded that:

The definition of the “practice of land surveying” in the *Code of Virginia* requires that the determination of topography, contours or the location of physical improvements, regardless of the tool utilized to make such determinations, be performed by a regulated professional (a land surveyor). Further, the use of photogrammetric tools to determine topography, contours or the location of physical improvements has the potential to be harmful to the public as others rely on base mapping done by photogrammetrists for construction and planning purposes. The risk of harm will increase as remote sensing technology advances and continues to evolve from a planning tool to a design tool.

In developing a regulatory system for photogrammetrists and users of other remote sensing technologies to determine topography, contours or the location of physical improvements, the questions raised in the **Other Issues** section of this report must be resolved in coming to a workable solution. Therefore, it is recommended that all parties related to the remote sensing industry in Virginia be involved in developing a solution to license remote sensing practitioners who “determine topography or contours for the purposes of design which will lead to construction, or the location of physical improvements for the purposes of design which will lead to construction” (fully licensed land surveyors would be the only ones authorized to determine the location of physical improvements in relation to internal or external land boundaries) under the licensing provisions of the APELSCIDLA Board.

The report from BPOR also included the following information:

Subsequent to the public hearings, individuals requested the opportunity to provide further input. As a result, the following individuals met with Department staff:

Judy Napier, VITA
William Shinar, VGIN/VITA
David Maune, ASPRS Potomac Region
Karen Schuckman, Vice-President, ASPRS
John Simmers, VDOT
Michael Zmuda, VDOT
Wilmer Sirine, land surveyor

All individuals expressed a willingness to work together to develop legislation. There was a consensus that any legislation should include all remote sensing technologies rather than be confined solely to photogrammetry, thereby creating a law that will accommodate future technologies as they are developed.

DPOR’s Facilitation Efforts

Based on a study performed by the Board for Professional & Occupational Regulation of the need to regulate photogrammetry, the Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers & Landscape Architects (APELSCIDLA Board)

requested at its December 11, 2003 meeting that the Department of Professional & Occupational Regulation (DPOR) facilitate a stakeholders meeting to formulate legislative language and recommendations for regulations pertaining to the regulation of photogrammetrists. The APELSCIDLA Board further requested that a minimum of three meetings be held.

The committee included:

Doyle B. Allen, Designee for the APELSCIDLA Board;
Tom Conry, Representative for the Virginia Association of Counties (VACO);
Joe Coppedge, Designee for the Virginia Association of Surveyors (VAS);
Mary Beth Fletcher, Designee for the Virginia Municipal League;
David F. Maune, Representative for the Potomac Region of the American Society for Photogrammetry and Remote Sensing (ASPRS);
John Palatiello, Executive Director for Management Association for Private Photogrammetric Surveyors (MAPPS);
William (Bill) Shinar, Virginia Geographic Information Network (VGIN);
John Simmers, State Photogrammetry Engineer, Virginia Department of Transportation (VDOT);
Bill Sirine, Rouse Sirine Associates Ltd.;
Curt Sumner, Executive Director, American Congress on Surveying and Mapping (ACSM); and
Kevin Nelson, Virginia Association for Mapping and Land Information Systems (VAMLIS).

Initially, four meetings were held - February 19, 2004, March 31, 2004, April 27, 2004, and May 18, 2004. Another meeting was held on September 23, 2004. The work of the committee was the basis for the 2005 legislation.

2005 Legislation

During the 2005 General Assembly Session, Delegate Preston Bryant introduced HB2863. The bill was amended during the legislative process to reflect various concerns that were raised by the stakeholders during the legislative process.

The new and amended regulations are necessary to implement the provisions of HB2863 from the 2005 General Assembly session which granted the APELSCIDLA Board authority to regulate the practice of photogrammetry as a sub-set of the land surveyor profession.

APELSCIDLDA Board's Regulatory Development Efforts

The APELSCIDLA Board formed a committee of individuals representing the various affected constituencies in order to develop draft proposed regulations for the APELSCIDLA Board's consideration. The committee had four meetings (October 13, 2005; December 6, 2005; January 12, 2006; and January 30, 2006). The APELSCIDLA Board adopted the draft prepared by the committee with a few minor modifications. The committee members were:

GIS Community - Larry Stiepek;
American Congress of Surveying and Mapping (ACSM) - Curt Sumner;
Former APELSCIDLA member- Doyle Allen;
APELSCIDLA member - Steve Stephenson;
Potomac Region of ASPRS – Dave Maune (Back-up - John Simmers), and
Virginia Association of Surveyors - Douglas A. Richmond.

Response to DPB’s Economic Impact Analysis (EIA)

As noted before, the definition of the “practice of land surveying” as contained in § 54.1-400 of the *Code of Virginia* includes the “... surveying of areas for ... the determination of topography, contours or location of physical improvements, and also includes the planning of land and subdivisions thereof ...” regardless of the tool that is used to accomplish such determination. Therefore, under the current definition in the *Code*, the determination of topography, contours or the location of physical improvements, regardless of the means utilized to achieve such determination, is the practice of land surveying.

The Board does not have discretion as to whether or not to regulate – as previously noted, what photogrammetrists are doing is the practice of the land surveying. The Board has discretion whether to subregulate photogrammetrists or require them to get a land surveyor license. Further, the Board did not ignore this problem – the Board assumed that individuals were complying with the law until it found out otherwise and then worked to find a reasonable solution for the photogrammetrists as well as those individuals who followed the requirements to obtain a license as a land surveyor. The Board decided that sub-regulation of photogrammetrists was the best avenue possible as licensure as a land surveyor, with required knowledge of boundary and deed issues, was not warranted or fair to the photogrammetrists (the Board elected to make it easier for photogrammetrists to obtain the required license by sub-regulation specific to their needs and services).

The EIA does not appear to address that current, established and practicing photogrammetrists have made sizeable investments in their profession to even be practicing in their chosen field (whether it’s regulated or not) – they have to have access to: a plane, pilots and crews; highly sophisticated and accurate cameras and related equipment; and sophisticated equipment to process, interpret and verify the accuracy of the captured images. Any such practitioners who would make such an investment would have multiple years of experience as well as relevant education to even be in the marketplace as a provider of photogrammetric services.

The reasonableness of grandfather provisions (combined 8 years of education and experience) – subsection B of § 54.1-404 states “Any such requirements shall include reasonable provisions for licensure without examination of persons deemed by the Board to be qualified to provide photogrammetric and remote sensing surveying services.” The combined 8 years of experience and education match what is in the NCEES Model Law. North Carolina required 7 years of experience (5 projects within North Carolina) for their grandfather period and South Carolina required 6 to 7 years of combined education and experience. In addition, the Facilitation group

agreed on a combination of 8 years of education and experience for the grandfather period as well as the regulation development committee all agreed that 8 years of education and experience was reasonable for grandfather candidates.

The reasonableness of grandfather provisions (specific course work) - subsection B of § 54.1-404 states “Any such requirements shall include reasonable provisions for licensure without examination of persons deemed by the Board to be qualified to provide photogrammetric and remote sensing surveying services.” The requirement for high school graduates, who do not possess any additional education, to have completed courses in algebra, geometry and trigonometry (see regulation 18 VAC 10-20-310.C.1) is reasonable in that the basis for photogrammetry is based on mathematical and geometric principles. Knowledge of these fundamental concepts is necessary in order to function as a photogrammetrist as it is the rudimentary basis for the generation of the photogrammetric work product.

As to the concern regarding the reasons why the same education and experience requirements (for non-grandfather applicants) are the same for a full land surveyor and a photogrammetric surveyor, here are several issues for consideration:

1. North Carolina, Florida and the NCEES model law all have one license for a land surveyor whether they are practicing as a traditional land surveyor or a photogrammetric surveyor. The NCEES model law calls for 4 years of experience after the LSIT. Therefore, their education and experience requirements are the same regardless of the type of surveying to be performed and a surveyor in these jurisdictions would have to stay in their area of competence so a photogrammetric surveyor would not be allowed to practice traditional boundary line land surveying.
2. South Carolina has separate licenses for traditional land surveyors and photogrammetric surveyors and both require 4 years of experience after the LSIT with a 4 year BS degree.
3. In Virginia, while a traditional land surveyor and a photogrammetric surveyor can both determine topography, contours and the location of physical improvements (and a traditional land surveyor can do other things as well), the tools each would use to do so would be different. A traditional land surveyor would determine topography, contours and the location of physical improvements using traditional surveyor methods while a photogrammetric surveyor would do so using photogrammetric methods and tools. In order for a traditional land surveyor to determine topography, contours and the location of physical improvements using photogrammetric methods, he or she would most likely need additional education, training and experience in that area before being competent to do so (see regulation 18 VAC 10-20-730.A); therefore, the education and experience requirements for a traditional land surveyor and a photogrammetric surveyor are not the same in order for both to determine topography, contours and the location of physical improvements using photogrammetric methods - the traditional land surveyor would need additional education, training and experience in using photogrammetric tools and methods.

I have also excerpted below an e-mail from Doyle Allen (he is a former APELSCIDLA Board member and has been intimately involved in the legislative and regulatory processes for the licensing of photogrammetrists in Virginia) on this topic which also addresses the issue of comity for Virginia's photogrammetric surveyors - to lessen the requirements below what is proposed may very well prevent our photogrammetric surveyors from being licensed in those states which do not have multiple land surveyor license categories.

The following are a few of my [Doyle Allen's] thoughts on the matter of education and experience (E&E) requirements being the same as for LS.

The NCEES model law (national trend) is for photogrammetry to be surveying practice. Therefore, VA present legislation could well be a stepping stone towards one license. Keeping E&E the same for both would prepare for that should the national trend evolve. Surveyor photogrammetrists are cognizant of this and I think that is why they are agreeable to the E&E requirement being the same.

The national trend and comity between states supports the E&E structure. Surveyor Photogrammetrists more than Land Surveyors work in multiple states, therefore E&E as well as exam requirements that support comity is a decided advantage.

The intended E&E regulations were heavily debated as part of working through the legislative process, with all interested parties (surveyors and photogrammetrists) at the table (so to speak). A lot of time and effort went into this process and the "consensus agreement" was for the E&E requirements to be the same and also for the LS fundamentals exam and the PS state specific portion to be the same. There is agreement on these items and to change them would create a lot of misunderstanding and perhaps mistrust.

The E&E requirement as proposed will prepare the candidates to be successful with the exams as structured.

The photogrammetrists have agreed that the E&E requirements are the minimal needed.

Different E&E requirements would most likely require different exam requirements as well and lead to a much higher administrative cost.

Localities were not willing to testify during the public hearings for the BPOR study as to mistakes that had been made as they have no incentive to publicly admit to problems that have occurred and resulted in additional costs to their taxpayers.

As to the extensive procurement issues raised in the EIA – this issue is irrelevant to the appropriateness of the Board's proposed regulations. The General Assembly has already decided that the use of photogrammetric tools for the determination of topography, contours or location of physical improvements, and the planning of land and subdivisions thereof was the practice of

land surveying when they passed HB2863 during the 2005 Session. In addition, the reference to the advice from the AAG in 2001 relative to the procurement issue is also irrelevant; the advice was whether the Board had the authority to sub-regulate and had nothing to do with procurement issues. Further, the Board's regulatory program will not change procurement law – it will not “force” state and local public entities to procure non-professional services (exempt photogrammetric services) through competitive negotiation; they can still be obtained through the IFB process. The Department of Professional and Occupational Regulation routinely uses the competitive negotiation process to obtain examination development and administration services and does not find the process to be cumbersome or burdensome. It allows for the procuring entity to obtain exactly what it desires through a negotiated process. While it may take a little while longer than merely issuing IFB's and tabulating the responses, it ultimately results in the acquisition of services available from the marketplace which best meet the needs of the procuring agency.

As to the contention by Bill Shinar during the BPOR study that the procurement of the Virginia base mapping project in 2001 would have cost an additional \$2,000,000 if it had been obtained through competitive negotiation is merely his opinion and not substantiated by facts. Further, the 2001 base mapping project was not done at a scale or grade that the resulting finished product would be considered usable for designing improvements to real property; therefore, with the regulatory program and associated exemptions established by HB2863 during the 2005 Session, VGIN would not be forced to procure such services in the future through competitive negotiation whereas in the past, it could be argued that they should have been obtaining such services through competitive negotiation. As to the last point, in 2001 the Board received an inquiry from MAPPS as to whether an IFB issued by VGIN was for the practice of land surveying (a professional service) – the Board reviewed the documentation and opined that portions of the IFB were for the practice of land surveying (the Board did not address how such services as to be procured by a state agency as that is outside the Board's scope of authority). The changes to the law made by HB2863 will prevent this from happening in the future.

The proposed licensure process is consistent with other states and the NCEES Model Law and is no more arduous than for a traditional land surveyor. The number of licensed land surveyors in Virginia continues to grow which indicates that the process is not excessive. Further, as part of the BPOR study process, DPOR representatives met with employees of the photogrammetric firm “Air Survey” located in Dulles, Virginia. The regulatory scheme being proposed took into account the thoughts and opinions expressed by the employees of Air Survey as to a reasonable regulatory program.

Conclusion

The Board's proposed regulations have been developed over approximately the last 6 years in concert with the affected constituents through a lengthy and difficult process. To say that the work product that has been reached at this stage is not reasonable, apparently based on nothing more than an opinion of what is reasonable, will unravel the last 6 years of effort and work by the Board, the Department, the legislature, and the affected stakeholders. In addition, the proposal is consistent with the NCEES Model Law as well as what other jurisdictions have

adopted. The requirements outlined in the proposed regulations are appropriate and reasonable and comport with statutory requirements.